

# Training in NOAA Satellite Proving Ground

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## A Changing World

Events of 2010



Deepwater Horizon  
Over 100 days'  
deployment

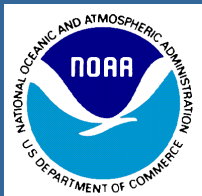


"Snowmageddon"  
DC – Baltimore Paralyzed  
for 7 days



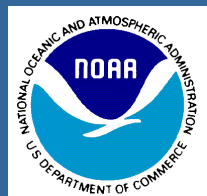
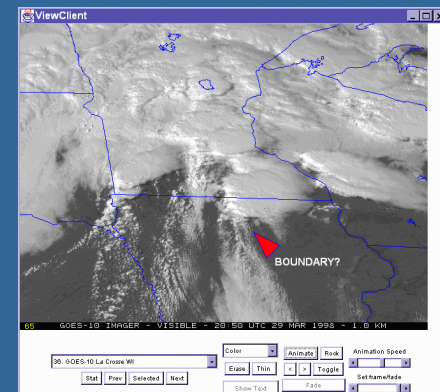
Iceland Volcanic Ash  
\$2B Aviation Impacts

Supporting these events *singularly* stretched NWS resources and capabilities



# Satellite Proving Ground Training

- ❖ Education, Outreach, and Training are Pathways
- ❖ Satellite Training Community is Specialized
- ❖ Training for GOES-R Proving Ground Partners
- ❖ Moving to Roadmap 2020
  - ✓ Impact-based Decision Support Services
  - ✓ Mobile Device Messaging/Alerting/Locating
  - ✓ Full-resolution Data, Meta-data
  - ✓ Weather Ready Nation



# Leveraging Training for Performance Improvement

*Workforce Management, Feb 2009*

## LESSON FROM FLIGHT 1549

**“Training is a line item  
that’s easy to whack when budgets get tight,  
because it’s not always easy to see  
its immediate payoff.**

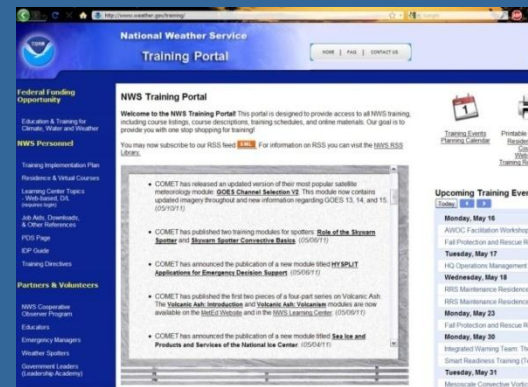


**That misses the  
point, however.**

**Training is about  
getting people ready to execute and  
put their training to the test  
when the organization needs it the most.”**

# Training Community

- Dedicated NWS Training Division, Center & 2 Branches
- Many Partners in NOAA
  - NESDIS, NWS, OAR, Oed, NOS
  - NOAA Cooperative Institutes & Programs
  - UCAR/COMET
- US Agencies (DOD, NASA, DHS/FEMA, DOT, USGS,...)
- Academic – Colleges and Universities
- Private Sector







# VISIT & Satellite (SHyMet) Courses

VISIT - Virtual Institute for Satellite Integration Training - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://rammb.cira.colostate.edu/training/visit/

Google

## VISIT

### Virtual Institute for Satellite Integration Training

- VISIT Home
- Training Sessions
- Training Calendar
- Blog Sites
- The VISIT Program
- VISIT People
- VISIT FAQ
- Links / Tutorials
- RAMSDIS Online

#### VISIT Home



Water Vapor Imagery Analysis for Severe Thunderstorm Forecasting

VISIT is a joint effort involving NOAA-NESDIS Cooperative Institutes, the [National Environmental Satellite Data and Information Service \(NESDIS\)](#), and the [National Weather Service \(NWS\)](#). The primary mission of VISIT is to accelerate the transfer of research results based on atmospheric remote sensing data into NWS operations using distance education techniques.

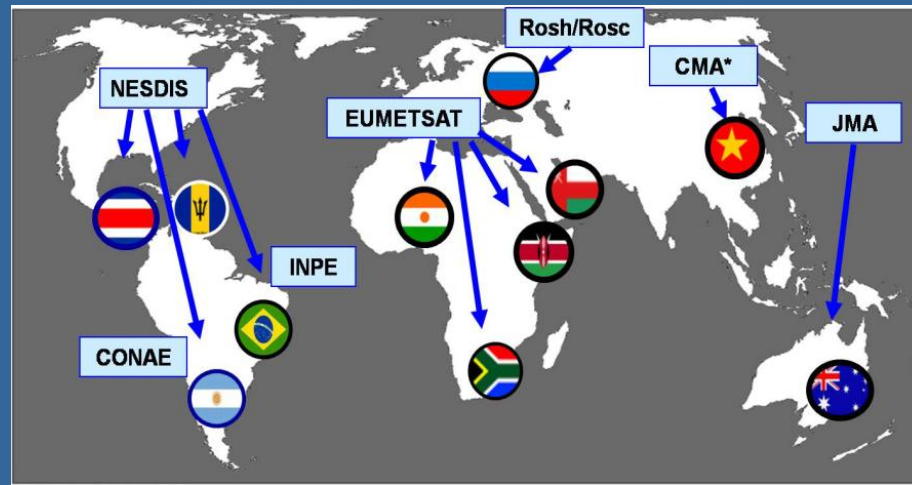


# Training Community

## International Collaboration

### WMO Space Programme Virtual Laboratory

- ✓ Centres of Excellence in Americas
  - ✓ Argentina, Barbados, Brazil, Costa Rica
- ✓ EUMETSAT
- ✓ Canada, China, Japan, Australia, others...

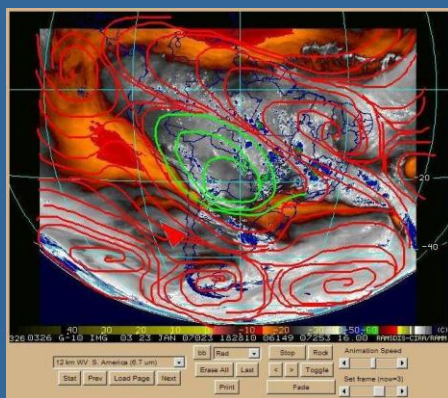


# NOAA & Partners

## Working Together for Satellite Training

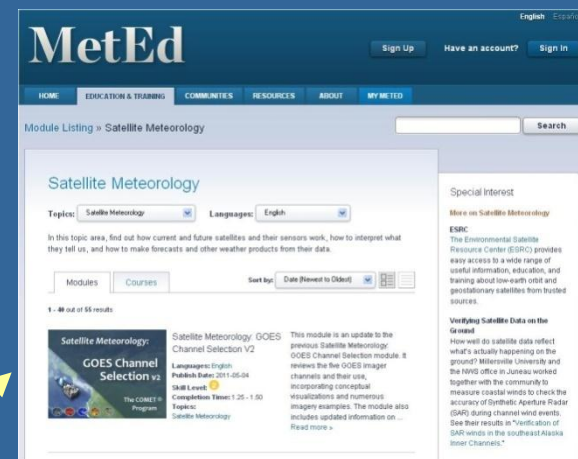


VISIT (CIRA/CIMSS/SPoRT)

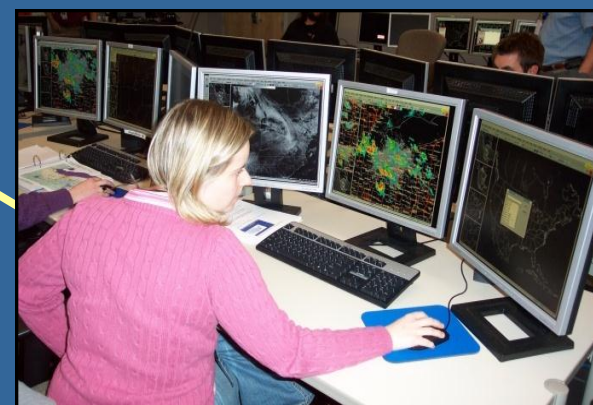


WMO (Virtual Lab)

EUMETSAT, DOD,  
NASA, DOT, ...



UCAR/COMET



NWS Training Division

Satellite  
Proving Ground

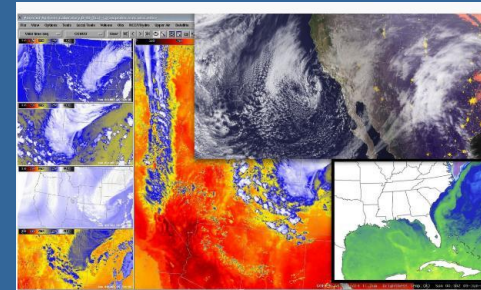
Users, Developers &  
Managers



# GOES-R Proving Ground Training

## Prepare NOAA Users & **Developers**

- Rapidly Evolving Technology & Operations
- Human Performance → Support Services
- Evolving Societal Needs & Impacts



Examples of GOES-R Proving Ground images and products

### GOES-R Satellite Proving Ground Mission Statement

The Geostationary Operational Environmental Satellite (GOES-R) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems...





# Proving Ground Mission Statement

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GOES-R Proving Ground engages NWS in pre-operational demonstrations of selected capabilities of next generation GOES.

The Proving Ground accomplishes its mission through:

- Sustained interaction between developers & users
- **Training**
- Product evaluation
- Solicitation of user feedback
- Product Improvement
- New Science and Technology Infusion



# GOES-R Proving Ground

[» Home](#) » GOES-R Proving Ground

## Resources

### Proving Ground Products List (Table)

[CIMSS NOAA Testbed Support Products](#)  
[CIRA Products](#)  
[SPoRT Products](#)  
[CIMSS "MODIS Imagery in D-2D"](#)

[Meetings and Presentations](#)  
[Teleconferences](#)

[NWS Collaborative Site Visits](#)  
[Proving Ground Timeline](#)

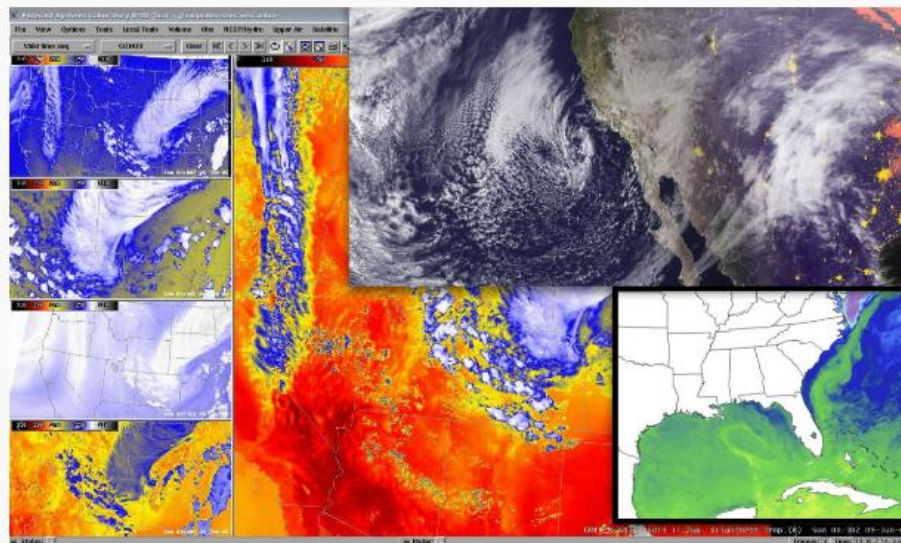
## Proving Ground Partners

[Two-Page PPF](#)  
[Two-Page PDF](#)  
[Page 1 PNG](#)  
[Page 2 PNG](#)

[GOES-R Advanced Baseline Imager \(ABI\) Bands](#)  
[GOES-R ABI Sample Product Table](#)  
[GOES-R ABI Weighting Function Examples](#)

## Related Links

[Proving Ground Overview](#)  
[GOES-R "101" VISITview lesson](#)  
[COMET GOES-R: Benefits of Next Generation Environmental](#)



*Examples of GOES-R Proving Ground images and products*

## GOES-R Satellite Proving Ground Mission Statement

The Geostationary Operational Environmental Satellite ([GOES-R](#)) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems...

[» Read more](#)

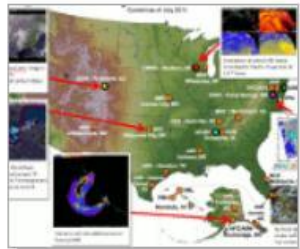
# VISIT Training

Title	Topic	Developed	Level	Instructor(s)	Recorded	Talking points	Live Training	Length (Min)
Volcanoes and Volcanic Ash Part 2	Aviation / Satellite	2011	Basic	Braun	Y	Y	N	90
Objective Satellite-Based Overshooting Top and Enhanced-V Anvil Thermal Couplet Signature Detection	GOES-R Proving Ground	2011	Basic	Lindstrom	Y	Y	Y	60
Synthetic Imagery in Forecasting Severe Weather	GOES-R Proving Ground	2011	Int	Bikos	Y	Y	Y	60
Synthetic Imagery in Forecasting Orographic Cirrus	GOES-R Proving Ground	2011	Basic	Bikos	Y	Y	Y	30
Morphed TPW Detection (MIMIC)	Satellite	2010	Basic	Lindstrom	Y	Y	Y	45
Regional Satellite Cloud Composites from GOES	Satellite	2010	Basic	Connell	Y	Y	N	50
Aviation Hazards	Aviation / Sat	2009	Basic	Braun	Y	Y	N	180
Volcanoes and Volcanic Ash Part 1	Aviation / Sat	2010	Basic	Braun	Y	Y	N	140
Basic Satellite Imagery Interpretation in the Tropics	Tropical / Sat	2010	Basic	Bikos	Y	Y	Y	60
The UW NearCasting Product	GOES-R Proving Ground	2010	Basic	Lindstrom	Y	Y	Y	45
Water Vapor Imagery Analysis for Severe Weather	Severe / Sat	2010	Int	Bikos	Y	Y	Y	75
The UW Convective Initiation Product	GOES-R Proving Ground	2010	Int	Lindstrom	Y	Y	Y	45



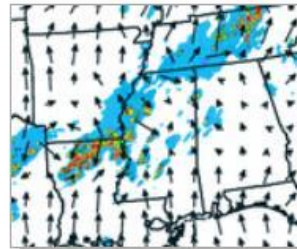
# SPoRT PG Products

Click on a topic below for additional information.



## Map of Partners

View a map detailing SPoRT's GOES-R PG partners.



## Lightning Forecast Algorithm

The LFA predicts total lightning flash rate densities based on the model-simulated microphysics and convective storm kinematics.



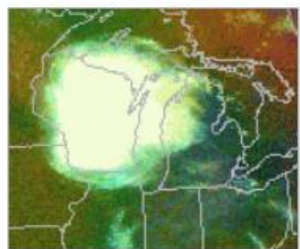
## MODIS/GOES Hybrid

Demonstration products to prepare end users for the Advanced Baseline Imager (ABI) using a combination of MODIS and GOES imagery.



## Pseudo Geostationary Lightning Mapper

Lightning products that mimic the 8km resolution of the Geostationary Lightning Mapper (GLM).



## RGB Products

RGB composite images offer the possibility of compressing multi-spectral information content for optimum visualisation.



# COMET MetEd

## Satellite Meteorology

Topics: **Satellite Meteorology**

Languages: **English**

In this topic area, find out how current and future satellites and their sensors work, how to interpret what they tell us, and how to make forecasts and other weather products from their data.

Modules

**Courses**

Sort by: **Date (Newest to Oldest)**

1 - 40 out of 55 results



### Satellite Meteorology: GOES Channel Selection V2

Languages: **English**

Publish Date: 2011-05-04

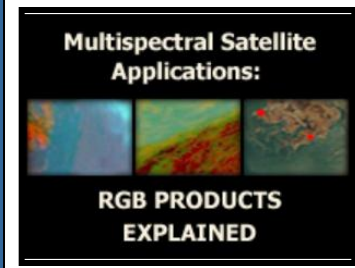
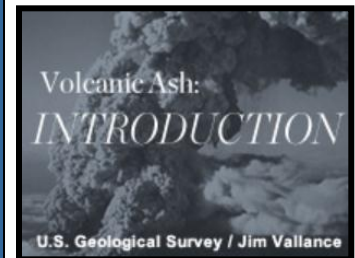
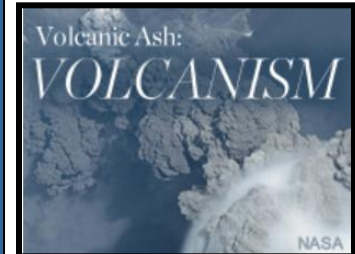
Skill Level: **2**

Completion Time: 1.25 - 1.50

Topics:

**Satellite Meteorology**

This module is an update to the previous Satellite Meteorology: GOES Channel Selection module. It reviews the five GOES imager channels and their use, incorporating conceptual visualizations and numerous imagery examples. The module also includes updated information on ... [Read more »](#)



# COMET Outreach Program: GOES-R Research Project Proposals

- Funding for collaborative projects
  - Support Proving Ground's activities in testing, validating, or finding innovative uses for GOES-R products
  - University must collaborate with NWS office
  - 1-year projects, \$15,000 limit
- More information
  - See website [www.comet.ucar.edu/outreach](http://www.comet.ucar.edu/outreach)
  - Or email [outreach@comet.ucar.edu](mailto:outreach@comet.ucar.edu)
  - Or see Wendy Abshire here at the conference

# Training Summary

- Collaborative International Training Community
- Help NOAA & Partners Meet Their Goals
- Integral to GOES-R PG & New NOAA Services
- Focus on Human Performance

The screenshot shows the VISIT website homepage. The browser title is "VISIT - Virtual Institute for Satellite Integration Training - Mozilla Firefox". The URL is "http://rammb.cira.colostate.edu/training/visit/". The page features the VISIT logo and a navigation menu on the left with links to Home, Training Sessions, Training Calendar, Blog Sites, The VISIT Program, VISIT People, VISIT FAQ, Links / Tutorials, and RAMSDIS Online. The main content area has the heading "Virtual Institute for Satellite Integration Training" and "VISIT Home". Below this is a featured image titled "Water Vapor Imagery Analysis for Severe Thunderstorm Forecasting" showing a satellite image of a storm system. At the bottom, a paragraph states: "VISIT is a joint effort involving NOAA-NESDIS Cooperative Institutes, the National Environmental Satellite Data and Information Service (NESDIS), and the National Weather Service (NWS). The primary mission of VISIT is to accelerate the transfer of research results based on atmospheric remote sensing data into NWS operations using distance education techniques."

The screenshot shows the GOES-R Proving Ground website. The browser title is "GOES-R Proving Ground - Mozilla Firefox". The URL is "http://www.noaa.gov/education/rosette/goes-r-proving-ground/". The page features the GOES-R Proving Ground logo and a navigation menu on the left with links to Resources, Messages and Presentations, GOES-R Proving Ground Timeline, GOES-R Advanced Satellite Image (ANI), GOES-R ASIS Sample Product Data, GOES-R ASIS Imagery, GOES-R ASIS Imagery, and Related Links. The main content area has the heading "GOES-R Proving Ground" and "GOES-R Satellite Proving Ground Mission Statement". Below this is a paragraph stating: "The Geostationary Operational Environmental Satellite (GOES-E) Satellite Proving Ground project engages the National Weather Service (NWS) forecast and warning community in pre-operational demonstrations of selected capabilities anticipated from the next generation of National Oceanic and Atmospheric Administration (NOAA) geostationary earth observing systems." At the bottom, there is a link to "Read more".

The screenshot shows the MetEd website. The browser title is "MetEd". The URL is "http://www.met-ed.org/". The page features the MetEd logo and a navigation menu on the left with links to Home, EDUCATION & TRAINING, COMMUNITIES, RESOURCES, ABOUT, and MY MET ED. The main content area has the heading "Satellite Meteorology" and "Module Listing > Satellite Meteorology". Below this is a search bar and a table of modules. The table has columns for "Modules", "Courses", "Start for", and "Date (Renewal to Close)". The first module listed is "Satellite Meteorology: GOES Channel Selection V2". The second module listed is "Satellite Meteorology: GOES Channel Selection V1". The third module listed is "Satellite Meteorology: GOES Channel Selection V3". The fourth module listed is "Satellite Meteorology: GOES Channel Selection V4". The fifth module listed is "Satellite Meteorology: GOES Channel Selection V5". The sixth module listed is "Satellite Meteorology: GOES Channel Selection V6". The seventh module listed is "Satellite Meteorology: GOES Channel Selection V7". The eighth module listed is "Satellite Meteorology: GOES Channel Selection V8". The ninth module listed is "Satellite Meteorology: GOES Channel Selection V9". The tenth module listed is "Satellite Meteorology: GOES Channel Selection V10". At the bottom, there is a link to "Read more".

# Web Information

GOES-R

[www.goes-r.gov](http://www.goes-r.gov)

VISIT

[rammb.cira.colostate.edu/visit](http://rammb.cira.colostate.edu/visit)

COMET METED

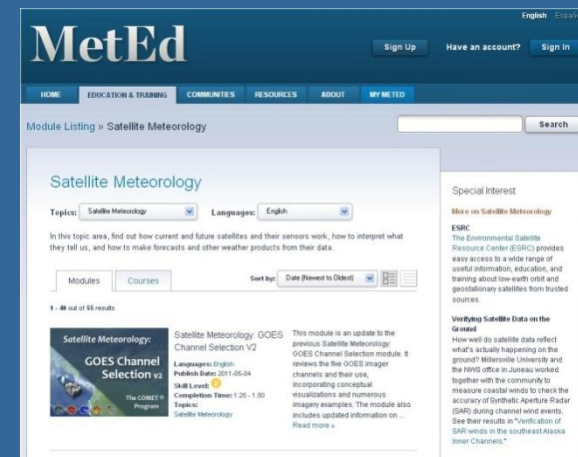
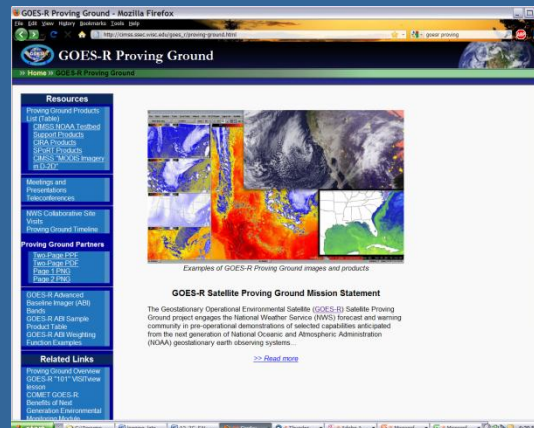
[meted.ucar.edu](http://meted.ucar.edu)

NOAA LMS

[doc.learn.com/noaa/nws](http://doc.learn.com/noaa/nws)

CIMSS PG

[cimss.ssec.wisc.edu/goes\\_r/proving-ground.html](http://cimss.ssec.wisc.edu/goes_r/proving-ground.html)





# Background Slides

## UW/CIMSS [NOAA](#) Proving Ground Testbed Decision Support Products

Description	Contact	Training		AWIPS Setup	Quicklooks/ Validation	Satellite Platform	Testbed Comments	Product Type
		VISIT	PPT					
<a href="#">Convective Initiation(UWCI)</a>	<a href="#">Wayne Feltz</a>	X	X	X	X	GOES Imager	<a href="#">HWT</a> , AWC, PR	Product Variant
<a href="#">Overshooting Top (OTTC) and Enhanced-V</a>	<a href="#">Wayne Feltz</a> <a href="#">Kris Bedka</a>	X	X			GOES Imager, MODIS/AVHRR	<a href="#">HWT</a> , HLT	AWG Proxy
<a href="#">WRF Simulated Radiances (ABI Simulated Radiances)</a>	<a href="#">Justin Sieglaff</a>		<a href="#">pdf</a>		X		HWT	Risk Reduction
<a href="#">WildFire ABBA (WFABBA)</a>	<a href="#">Chris Schmidt</a>					GOES Imager	HWT	AWG Proxy
<a href="#">NearCast</a>	<a href="#">Ralph Petersen</a>	X		X	X	GOES Imager, GOES Sounder	<a href="#">HWT</a>	Risk Reduction
<a href="#">Volcanic Ash</a>	<a href="#">Mike Pavolonis</a>	X	X	X		MODIS, SEVIRI	AAWU, AWC, HLT, PR	AWG Proxy
<a href="#">Low Clouds, Cloud Type, Fog</a>	<a href="#">Mike Pavolonis</a>		X <a href="#">Quick Facts</a>			MODIS-Alaska, GOES-CONUS	AAWU, AWC, HLT	AWG Proxy
<a href="#">SO<sub>2</sub></a>	<a href="#">Mike Pavolonis</a>				<a href="#">See Contact</a>	MODIS	AAWU, AWC	AWG Proxy

### Testbed Legend

HWT-Hazardous Weather Testbed

AWC/AWT-Aviation Weather Center/Testbed

HPC-Hydrological Prediction Center

AAWU-Alaskan Aviation Weather Unit

HLT-High Latitude Testbed-Alaska

NHC-National Hurricane Center

PR-Pacific Region

OPC-Ocean Prediction Center

## UW/CIMSS Tropical Proving Ground Decision Support Products for the National Hurricane Center

Description	Contact	Training	Data Page	Validation	Satellite Platform	Product Type
<a href="#">Tropical Overshooting Tops</a>	<a href="#">Sarah Monette</a>	X	X		SEVIRI	AWG Proxy
<a href="#">Hurricane Intensity Estimation (HIE/ADT)</a>	<a href="#">Tim Olander</a>	X	X	X	SEVIRI	AWG Proxy
<a href="#">Saharan Air Layer (SAL)</a>	<a href="#">Jason Dunion</a>	<a href="#">SAL</a> (Split Window) <a href="#">SAL</a> (Pseudo Natural Color)	X		SEVIRI	AWG Proxy

# GOES-R - CIRA Product List

## Information

Experimental and operational data are used to demonstrate subsets of what will be available from GOES-R. The real time demonstrations include GOES-R AWG products, product variants, new products and new imagery/visualization techniques. The table below summarizes the products, with a clickable link to more information.

## CIRA Product List:

Product & Description	Product Input	Demonstration Type	Demonstration Resolution	GOES-R Resolution	Product Status/Availability	Product Source
<a href="#">GeoColor Imagery</a>	GOES/MODIS/DMSP	New Imagery/Visualization Technique	GOES 4 km/30 min	2 km/5 min	Since Spring 2009	CIRA
<a href="#">True Color Imagery</a>	MODIS	New Product	0.5 - 1 km/3 hour	1 km/5 min	Since Spring 2010	CIRA
<a href="#">Low Cloud / Fog Imagery</a>	GOES	Product Variant	GOES 4 km/15 min	2 km/5 min	Since Fall 2009	CIRA
<a href="#">Cirrus Detection</a>	MODIS	New Product	1 km/3 hour	1 km/5 min	Since Spring 2010	CIRA
<a href="#">Orographic Rain Index (ORI)</a>	GOES/Radar/GFS	New Product	1 km/1 hour	2 km/1 hour	Since Winter 2009	CIRA
<a href="#">Marine Stratus Cloud Climatology</a>	GOES	New Product	GOES 4 km/1 hour	2 km/30 min	Since Summer 2010	CIRA
<a href="#">Blowing Dust Detection (Split-window technique)</a>	GOES	Product Variant	GOES 4 km/30 min	2 km/5 min	Since Fall 2009	CIRA
<a href="#">Blowing Dust (Blue-light absorption technique)</a>	MODIS	Product Variant	1 km/3 hour	2 km/5 min	Since Spring 2010	CIRA
<a href="#">Cloud / Snow Discriminator</a>	MODIS	Product Variant	1 km/3 hour	2 km/5 min	Since Fall 2009	CIRA
<a href="#">Cloud Layers &amp; Snow Cover Discriminator</a>	MODIS	Product Variant	1 km/3 hour	2 km/5 min	Since Fall 2009	CIRA
<a href="#">Snow / Cloud Discriminator (3-color technique)</a>	GOES	Product Variant	GOES 4 km/30 min	2 km /5 min	Since Summer 2010	CIRA